ABSTRACT OF THE INVENTION

Provided herein are variant alleles of a gene encoding a mu opioid receptor, along with cloning vectors for replicating such variant alleles, expressing vectors for expressing the variant alleles to produce variant mu opioid receptors, and antibodies to such variant receptors. Also disclosed are binding characteristics of such variant receptors regarding binding to opioid ligands, and the using of such binding characteristics to diagnose a subjects susceptibility to pain, susceptibility to an addictive disease, selecting an appropriate pain reliever along with a therapeutically effective amount of the reliever to administer to a subject suffering from pain. In addition, diagnostic methods for diagnosing a disease or disorder such as infertility, constipation, diarrhea, decreased immune response relative to a standard, and decreased ability to withstand stress relative to a standard, along with commercial kits for diagnosing such diseases or disorders. Furthermore, the invention is also directed to identification of targeted prevention methods, early therapeutic intervention, and improved treatment of opioid addiction, infertility, constipation, diarrhea, impaired immune responsiveness, and stress.